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The Role of Social Support, Optimism, Cognitive Appraisal, and Coping Behavior in the Stress Process

by

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(C)

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ABSTRACT

During the past decade there has been an increasing recognition that the stress-illness relationship is influenced by several factors. Several moderator variables have been identified: an individual's expectations, social support, appraisal of the stressor, and coping behavior. A cognitively oriented model of stress and coping has been proposed that integrates charcteristics of the individual and environment in predicting coping behavior and health status. Unfortunately, no studies to date have simultaneously examined both individual and environmental characteristics in predicting health status so the utility of the model is left undetermined. The present study assessed person variables, cognitive appraisal, and coping behavior as predictors of psychological well-being. The results indicated that hassles, optimism, and social support contributed significantly in the prediction of illness scores. The contribution of cognitive appraisal and coping behaviors in predicting illness was negligable. The results are discussed in terms of the cognitively oriented model of stress and coping.

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I. Introduction

Early stress research was concerned with documenting a relationship between stressful life events and illness. The results of these studies demonstrated that there was a link, but researchers could not explain why some individuals remained healthy and others became ill under what appeared to be the same level of stress. During the past decade interest has shifted toward identifying variables that moderate the relationship: personality characteristics (Kobasa, 1982), social support (Sarason, 1978), cognitive appraisal, coping behaviors (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986), and characteristics of the stressor (McFarlane et al., 1982).

With the inclusion of these moderator variables, the relationship between stress and illness, which initially appeared simple, became extremely complex. A theoretical model put forth by Lazarus, DeLongis, Folkman, & Gruen (1985) attempted to integrate the variables involved in the stress process. The model postulated that environmental and individual characteristics interact to result in an appraisal of the situation which yields a coping behavior. Lazarus predicted that coping behavior is a major determinant of health status. The present study will examine the interrelationships of several variables and evaluate the extent to which the model proposed by Lazarus is supported. The variables chosen include stress, social support, optimism, cognitive appraisal, coping, and psychological well-being.

A. Stress

Life Event Approach

There are two major approaches that have been used to study the concept of stress. The life event approach, exemplified by the Schedule of Recent Experiences (SRE) (Holmes & Rahe, 1967), has assumed that changes in one's life require adaptation on the part of an individual and are thus stressful. It was further assumed that people who experienced significant amounts of change within a specified time period were more susceptible to physical and psychological disorders. With this approach, individuals are asked to indicate which events they have experienced within a specified time period, and each event is weighted to reflect the amount of stress experienced. Methodological advances were made with the development of this approach because quantitative predictions could be made about the magnitude of life change, and stress could be measured in terms other than illness. A tremendous amount of research has been conducted using this approach but the size of the correlation between life events and physical illness is generally in the .20 - .30 range which leaves a large proportion of the variance in illness scores unexplained (Tausig, 1982).

A number of criticisms regarding the use of the life events approach have been discussed by several researchers (Dohrenwend & Dohrenwend, 1974; Tausig, 1982, Perkins, 1982). Tausig (1982) pointed out the controversy over the use of objective versus subjective weighting of the events. A scale utilizing objective weightings of stressors has had each event rated according to its

severity by a set of judges. An individual completing the scale indicates which events have occurred and the previously derived weights are summed to obtain a stress score. Scales that utilize subjective weightings of stress allow the individual completing the scale to rate the severity of the event according to personal standards. Objective weightings are believed to facilitate scoring because common criteria are used to evaluate all individuals; however, the use of subjective weightings may improve the relationship between stressful events and health because these reports are closer to an individual's actual experience. The controversy over this issue reflects two different approaches toward the nature of stress: whether it is purely environmental stimuli (objective weightings) or whether it is determined by individuals and their situations (subjective weightings).

Researchers have noted that the life event scales contain items that are used to indicate physical and psychological status (Dohrenwend & Dohrenwend, 1974; Schroeder & Costa, 1984). A common example includes major illness; clearly the size of the correlation between the stress scores and the illness score will be inflated.

Schroeder and Costa (1984) conducted a study in which life events were classified as contaminated (due to confounding with health measure and neuroticism) or uncontaminated (no confounding with health measures) and then examined the correlations between contaminated and uncontaminated stress scores with illness measures. The results indicated that the correlation between contaminated stress scores and illness ratings was substantially

higher than the correlation between uncontaminated stress scores and illness. The correlation between uncontaminated events and illness scores was not statistically significant. The researchers concluded that it was evident that the relationship between life events and illness is largely due to confounding of the two measures. It was suggested by Schroeder and Costa (1984) that the life event approach does not adequately operationalize stress. An alternative approach was put forth by Lazarus and his colleagues (Lazarus & Launier, 1978; Lazarus et al., 1985) which viewed stress as an interaction between the environment and the individual.

The characteristics of the stressful event in the life event approach are left undetermined. Important characteristics of the stressor include desirability, controllability, and ambiguity. McFarlane et al. (1983) found that when individuals perceive events as undesirable and when they do not feel in control an increase in distress is reported. The SRE contains items that may be positive or negative depending upon an individual's circumstances but the scale does not consider that the amount of change may differ depending upon the desirablility of the event. For example, pregnancy may be an extremely positive event for a women who wants a child desperately but for an unwed teenager it may an extremely negative event.

Paykel, Prusoff, and Uhlenhuth (1971) developed an instrument measuring life event change by modifying the SRE. Items were rephrased so they were applicable to lower socioeconomic groups, items that were indicative of psychiatric

symptoms were eliminated, and items were separated if there were possible differences in desirability. Subjects completing this scale are asked to indicate on a twenty point interval scale how stressful an event was for them. Results indicated that there is a common core in the way events are perceived by individuals in one society. Events that received low ratings, indicating less stress, implied little undesirability or life change, events that received high stress ratings involved both significant amounts of change and were undesirable. Researchers using this scale are able to explore the questions of desirability and meaning to the individual as mediators of the stress-illness relationship.

Other researchers investigating the relationship between life events and illness include Sarason, Johnson, and Siegel (1978). These researchers developed the Life Experiences Survey which consists of 57 items. Individuals completing this scale are asked to indicate which items occurred to them, indicate how long ago the event did occur, and thirdly to indicate the impact of the event on a 7-point rating scale ranging from extremely negative (-3) to extremely positive (+3). Scores are then obtained which represent the total amount of change, desirable and undesirable. Results indicated that different patterns of relationships were exhibited between desirable and undesirable events and illness. These researchers concluded that perception of events is important in mediating the relationship between life events and health status.

The Hassles Approach

The hassles approach developed by Kanner, Coyne, Schaefer,

and Lazarus (1981) has provided an alternate method of assessing stress. These researchers conceptualized stress in terms of hassles, which are the irritating demands that characterize everyday interaction with the environment. The underlying assumption is that these relatively minor occurrences have a cumulative effect upon one's level of psychological and physical functioning. Kanner et al. (1981) discussed two possibilities about how hassles may affect functioning. One, major life events could affect an individual's pattern of daily hassles through a disruption of everyday life. For example, a divorce may result in a number of demands that were not previously made upon an individual because the spouse took care of them; these increased demands may indicate the amount of change and stress brought on by the divorce. Second, the experience of hassles may arise from an individual's style of dealing with the environment, for example, staying in a job one dislikes may result in an increased number of job related hassles.

The assessment of hassles requires individuals to subjectively rate the intensity of the events experienced. This model is contrasted with the life events perspective in the following ways: positive and negative events are treated separately, an ipsative approach is used to subjectively rate the experience of stress, and a wider variety of stressful situations are used in determining the magnitude of stress experienced by an individual.

Weinberger, Hiner, and Tiernay (1987) found hassles to be a better predictor of health outcome (physical and psychological

disability) than life change events. When controlling for hassles, the association between life change units and functional status was not significant, but controlling for life change units did not change the association between hassles and functional status.

The relationship between stress and well-being has been documented using both the life events and the hassles approach. Life events have been shown to be moderately related to psychological symptoms, specifically levels of depression and morale (Schaefer, Coyne, & Lazarus, 1981) and to physical symptoms (Dohrenwend & Dohrenwend, 1974). Hassles have demonstrated a stronger relationship than life events with psychological well-being (Kanner et al., 1981); there is a strong relationship between hasssles, depressive symptomology, positive and negative morale (Schaefer et al., 1981). Stone, Reed, and Neale (1987) assessed daily hassles in individuals over a period of ten days and found that there was a peak in the number of undesirable daily events three to four days prior to the noticing of any physical symptoms indicative of infectious illness, about the time required for the virus to incubate.

B. Coping

Over the years several models of coping have been developed. Coping has been viewed as a set of ego defenses, as traits, as behaviors that occur in response to specific types of stress, and as a set of actions that unfold over time (Folkman & Lazarus, 1980). Because of these various conceptualizations

researchers need to clearly specify their working definitions.

Earlier Models

The psychoanalytic ego model defines coping in terms of realistic and flexible thoughts and actions that solve problems and therefore reduce stress (Haan, 1977). Researchers utilizing this model generally describe a hierarchy of behaviors ranging in levels of maturity. Vaillant (1977) has developed a four-level hierarchy of defenses. The first level includes mechanisms that are common in psychotic individuals, who use behaviors such as distortion, delusional projection, and psychotic denial to rearrange external reality to suit their thoughts. The second level includes immature mechanisms which are common in individuals suffering from severe depression and personality disorders. Such mechanisms include hypochondriasis, fantasy, and passive-aggressive behavior. Level three mechanisms are classified as neurotic and include behaviors such as repression, reaction-formation, displacement, and dissociation. These mechanisms are frequently used by individuals when they are dealing with an acute stressor. The fourth level behaviors are classified as mature mechanisms and include altruism, humor, suppression, sublimation, and anticipation. These behaviors are aimed at integrating reality, interpersonal relations, and instincts and are exhibited by healthy individuals.

Vaillant (1977) conducted a study in which coping behavior was correlated with adaptational status in a number of different role areas: career adjustment, social adjustment, health status, and psychological adjustment. In all cases, higher scores in

adjustment were significantly correlated with the use of mature behaviors. The use of immature defenses was found to precede the development of physical illness.

Haan (1977) also utilized the psychoanalytic ego model to develop a model of coping behavior. She arranged a three level hierarchy of behaviors, fragmented, defensive, coping, according to the extent of their adherence to reality. Fragmented behaviors include actions that do not adhere to external reality; these are behaviors that would be evident in psychotic individuals, or individuals undergoing an acute crisis when all previously used modes of coping and defenses have been tried without success. Defensive behaviors are higher on the hierarchy but involve some distortion and negation of reality; there is the expectation on the part of an individual that the stress will be reduced even if the problem is not addressed directly. Coping behaviors are actions that are flexible and operate within the constraints on reality; these are behaviors exhibited by individuals who are handling a stressful situation in an adaptive manner.

Morrissey (1977) evaluated the Haan model based on a review of the literature that utilized the model. It was concluded that the model was theoretically useful in a number of different areas: to classify responses to experimental stimuli, to examine personality functioning, and to investigate the relationship between ego processes and social functioning. Initial results determining construct validity supported the notion that coping and defense should be theoretically differentiated. A number of problem with this model were also identified: nonrepresentative

samples were used in the studies, tests for significance of the results were too liberal, and low interrater consistency was obtained between judges.

Folkman and Lazarus (1980) have discussed three criticisms of the ego model. One, coping and outcome are confounded because an evaluation of what level the behavior lies involves an evaluation of how well the person is functioning. For example, classifying an action as a defense automatically implies that the individual is not functioning well. Two, obtaining adequate interrater agreement on labelling the ego processes is difficult to obtain. Three, the behaviors are treated as a defense system whose function is to reduce tension and problem-solving actions are not studied.

Coping behavior has also been conceptualized in terms of traits, for example, repression-sensitization (Byrne, 1961). Repression refers to a tendency to deal with threatening situations through the use of a number of avoidance strategies including denial and rationalization. Sensitization refers to a propensity to respond with extreme vigilance toward aspects of the stressful situation using intellectualization, rumination or obsessiveness. Cook (1985) assessed the stress reactions of individuals who were rated on repression-sensitization traits. Results indicated that individuals described as repressors experienced larger stress reactions as measured by skin conductance and reported more distress than did persons rated as sensitizers

Several problems with this approach have arisen. The term

coping trait implies that an individual exhibits a stable tendency from which a prediction is made about how the person will cope in the same type of stressful encounter. However, research has indicated that trait measures, in general and used in isolation, are extremely poor predictors of stress reactions (Lazarus & Folkman, 1980). Lazarus and Folkman (1984b) suggest that trait measures are poor predictors of coping behavior because they are based on the assumption that people are behaviorally, attitudinally, and cognitively consistent across situations. Research indicates that individuals are more variable than consistent in their coping responses (Folkman & Lazarus, 1980). Trait measures are limited to a few dimensions and the multidimensionality of the coping process is not captured. Researchers have identified numerous coping strategies in response to a single stressor (Pearlin & Schooler, 1978; Billings & Moos, 1984).

Coping has also been examined in response to specific situations for example, with cancer (Hughes, 1982), chronic illness (Felton & Revenson, 1984), and battered women (Mitchel & Hodson, 1983). This approach allows a comprehensive description of coping behaviors to be obtained but findings tend not to be generalizable across situations. This is clearly a limitation because coping behaviors vary across situations. Pearlin and Schooler (1979) conducted a study in which they investigated the coping behavior of individuals in response to everyday strains. Seventeen different coping modes that were effective in different role areas were identified; behaviors that were adaptive in

dealing with marital stressors were not effective in dealing with job stressors.

Lazarus' Transactional Model

Lazarus and his colleagues (Lazarus & Launier, 1978; Folkman & Lazarus, 1980; Lazarus & Folkman, 1984a; Lazarus et al., 1985) have proposed a model that conceptualized coping as the process of managing demands that are appraised as stressful by the individual. This definition views coping as a process, and, therefore as something dynamic and changeable under varying personal and situation conditions. Earlier definitions of coping (Haan, 1977; Vaillant, 1977), often equated success with coping. The definition put forth by Lazarus does not equate coping with success or failure with respect to the stressor therefore coping is not confounded with outcome and can be used as a predictor of psychological and physical well-being.

This model has identified two major categories of coping behavior: the regulation of distress (emotion-focused coping) and the management of the problem that is causing the distress (problem-focused coping) have been identified using this transactional model. Examples of an emotion-focused mode include wishing the situation would go away, accepting the situation since nothing else can be done, and looking on the positive side. Examples of problem-focused coping include changing something about oneself or the situation, making a plan of action, and confronting the person responsible. This distinction is generally supported by other researchers (Pearlin & Schooler, 1978; Billings & Moos, 1984; Stone & Neale, 1984).

A notable feature of this model is that it considers the relationship between the individual and environment. The basis for individual differences in reaction to stress lies in the concept of cognitive appraisal which is hypothesized to integrate characteristics of the individual and environment (Lazarus et al., 1985). There are two components of cognitive appraisal (Lazarus & Folkman, 1984a).

The first component refers to primary appraisal, which is an evaluation of what is at stake in the encounter, for example, evaluating the extent to which the stress threatens self-esteem, or a loved one. The second component of cognitive appraisal refers to an evaluation of what coping options are available and the likelihood that an individual can accomplish what they set out to do; evaluating the extent to which the situation is changeable, or has to be accepted. Both types of appraisal are continually being undertaken and revised by the individual as the situation unfolds.

Three kinds of primary appraisal are distinguished (Lazarus & Folkman, 1984a): irrelevent, benign-positive, and stressful. An irrelevant appraisal indicates that the individual has evaluated the situation as holding no implications for an individual's well-being, nothing is to be lost or gained. A benign-positive appraisal occurs if the outcome is construed as positive, feelings of happiness and satisfaction generally accompany this appraisal. A stressful appraisal can take several forms including harm/loss, threat, and challenge. A harm/loss apriasal indicates that something has already happened to the individual. A threat

appraisal indicates that an individual has anticipated some harmful event that carries with it negative implications for the future. The final type is a challenge appraisal in which anticipatory coping occurs but the potential for gain is focused upon.

Folkman, Lazarus, Dunkel-Schetter, DeLongis, and Gruen (1986) investigated the relationship between appraisal and coping behavior. The results indicated that when threat to self-esteem was high, individuals tended to use more confrontive coping, self-control coping, and accepted more responsibility than when threat to self-esteem was low. When a loved one's well-being was threatened, individuals tended to use more emotion-focused coping, specifically escape-avoidance.

McCrae (1984) assessed the influence of losses, threats, and challenges upon coping activity. The results indicated that individuals who are facing a threatening situation were likely to use fatalism and wishful thinking as efforts to redefine the situation whereas individuals who faced a challenge were more likely to persevere, think positively, and take rational action. The behaviors engaged in by challenged persons are considered to be more adaptive modes. Folkman and Lazarus (1980) indicated that when situations hold the potential for change, individuals engaged in problem-focused coping, whereas emotion-focused coping was utilitized when the situation had to be accepted.

Folkman and Lazarus (1980) have shown that both types of coping are used in stressful situations, indicating that individuals are not consistent in their coping efforts. It was

found that the context of the stressful event influenced the type of coping strategy. Work-related stressors were associated with higher levels of problem-focused coping and health-related stressors were related to increased levels of emotion-focused stressors. Pearlin and Schooler (1978) found that the most effective modes of coping with marital stressors included avoidance and withdrawal; effective strategies for dealing with work-related stressors included a manipulation of values.

The distinction between different categories of coping behavior is needed in order to determine which behaviors are more adaptive. McCrae and Costa (1986) identified effective and ineffective modes of coping. Behaviors associated with a reduction in distress included seeking help, expressing of emotion, and taking rational action. Coping behaviors found to be ineffective in solving a problem or reducing distress included wishful thinking, self-blame and indecisiveness. Folkman et al. (1986) investigated the relationship between coping and outcome in a community sample. The results indicated that planful problem-solving and positive reappraisal were related to satisfactory outcomes whereas unsatisfactory outcomes were related to distancing oneself from the situation and confrontive coping. Holahan and Moos (1985) compared the coping strategies of individuals who remained healthy under stress and those who became ill. The two groups were distinguished on the amount of avoidance coping; healthy individuals used avoidance coping less than one-quarter of the time while unhealthy individuals utilized avoidance modes more than one-third of the time.

Many researchers have investigated the impact of individual characteristics on coping strategies (Fleishman, 1984; Kobasa, Maddi, & Courington, 1979; McCrae & Costa, 1986; and Pearlin & Schooler, 1978). In a model depicting the relationship between stress and outcome, Lazarus et al. (1985) considered personal beliefs and expectations about the situation and their abilties to be causal antecedents of coping behavior. The assumption underlying the investigation of individual differences is that these patterns of beliefs, developed over a lifetime, predispose the individual to cope in certain ways. Summarizing their findings on the effects of personality on outcomes, Pearlin and Schooler (1978) concluded that personality characteristics were important in stressful situations where an individual has little control.

Lazarus and Folkman (1984a) suggested that one's beliefs can influence coping behavior. Scheier and Carver (1985) investigated the personality dimension of optimism. An optimist is an individual who expects that things will go his/her way and generally believes that outcomes will be favorable. A pessimist is an individual who anticipates bad outcomes and generally expects things will not go their way. Data (Scheier & Carver, 1985) indicated that individuals higher in optimism have a more internal locus of control, are higher in self-esteem, and score lower on measures of depression, perceived stress, and social anxiety than pessimistic individuals. Persons who were optimistic also reported fewer physical symptoms than pessimistic individuals.

It is suggested that there is a link between optimism and coping behavior. According to the theory of self-regulation, proposed by Scheier and Carver (1985), it is proposed that because optimists believe outcomes will be favorable, they are likely to expend additional effort to achieve their goal, an example of problem-focused coping; pessimists on the other hand may tend to disengage themselves from the situation because they anticipate unfavorable outcomes resulting in emotion-focused coping.

Scheier, Weintraub, and Carver (1986) have investigated the divergent coping strategies of optimists and pessimists. Optimism was found to be positively correlated with problem-focused coping, acceptance, and positive reinterpretation. Negative correlations were found between optimism and denial. This pattern of results suggested that optimists engage in more adaptive coping mechanisms.

C. Social Support

The role of social support as a mediator of life stress has received a great deal of research attention (Schaefer et al., 1981; Cohen & Wills, 1985; Sarason, Shearin, Pierce, & Sarason, 1987). The interest has arisen from the assumption that it may be easier to modify social relationships than to change the experience of stress or modify personality characteristics. Researchers have generally concluded that a lack of social support is associated with lower levels of well-being. There are however, some conceptual and methodological difficulties which need to be addressed before a theoretical framework can be developed. Social

support has been recognized as being multidimensional but there is not yet agreement on what these components are (Barrera & Ainlay, 1983; Sarason, Levine, Basham, & Sarason, 1983). Arising from this problem is a lack of standardized measures that are used to assess social support (Sarason et al., 1987). These difficulties have limited the comparability of research findings, which in turn has impeded the development of an adequate theoretical framework that can be used to guide future research.

There are two major theories put forth regarding the effects of social support on well-being. The first theory is the main effects model (Moos & Mitchell, 1982; Thoits, 1985) and the second is the buffer model (Gore, 1981; Cohen & McKay, 1984).

Main Effects Model

The main effects model suggests that social resources have a beneficial effect regardless of whether an individual is under stress. Generally it postulates that belonging to a social network provides an individual with a set of stable rewarding roles. This integration may help one to avoid negative experiences and provide a sense of stability and predictability for an individual. Data suggests that the main effects of support on health occur when the sample consists of social isolates with very few contacts and individuals with high levels of support (Cohen & Wills, 1985). It was suggested that once some minimal level of support is attained the effect of additional support is lessened.

The structural component of social support refers to characteristics of one's social network: frequency of contact,

degree of reciprocity between members, how long relationships have existed (Hall & Wellman, 1985). The most frequently studied component is size of the network. There are two assumptions made when this component is studied (Cohen & Hoberman, 1983). One, the benefits accrued are directly proportional to the size and range of the network and two, having a relationship is equivalent to receiving support. These asumptions have been questioned recently. Studies have examined married individuals and have found that these individuals may be unhappier than individual who are unmarried, so the existence of a relationship doesn't necessarily indicate it is supportive (Coyne & DeLongis, 1986). Too often researchers have ignored the negative aspects of social support (Rook, 1984).

Rook (1984) conducted a study in which she compared the positive and negative effects of social support upon well-being. The results indicated that negative social interactions, as measured by the number of individuals that were sources of problems for them and the type of problem, were more potent indicators of well-being than were positive social interactions. A question was raised as to why negative social ties had such strong effects on well-being whereas positive interactions did not. It was suggested that unless positive interactions are assessed in terms of specific supports they may be unlikely to enhance well-being unless an acute need for support exists. The individuals in this study were not undergoing any major life crisis.

Berkman and Syme (1977) examined social ties of individuals

and found that marital status, number of close friends and relatives, and membership in community organizations predicted mortality rates in a large community sample. This study indicated that social ties are important in health but it does not say what it is about the ties that is beneficial. Schaefer et al. (1981) using the same questions about social support as Berkman and Syme (1977) found that an increase in social network size was positively associated with depression which contradicts the above results. The explanation offered was that being involved in a social network may involve demands and impose additional stress which may negate the positive effects of support.

Billings and Moos (1984) found that frequency of contact and size of network correlated negatively with depression and physical symptoms but a direct association was obtained with self-confidence. However, stronger correlations were found between the quality of relationship and psychological functioning indicating that quality is more important than quantity. Some sex differences were also found: support appeared to be more effective for women than men. It was proposed that the existence of social resources affects functioning by minimizing the stressors experienced by an individual.

The Buffer Model

The second major theory explaining the effects of social support upon health is the buffering model. This model proposes that support protects an individual when experiencing high levels of stress (Cohen & Wills, 1985). There are two different points in the stress process where social support may intervene. The

perception of support may prevent the individual from appraising the event as stressful. The availability of social support may also influence the stress reaction by the provision of a solution to the problem or by bolstering one's self-esteem, thereby decreasing the physiological response associated with stress. Research supporting this model generally utilized measures of perceived social support (Cohen & Wills, 1985).

Perceived support refers to the perception of an individual that they are loved and others will help them if they need assistance; it has been shown to consist of various dimensions: informational, emotional, and tangible (Cohen & Wills, 1985). Until recently, these distinctions were used by researchers with no theoretical rationale. Barrera and Ainlay (1983) proposed a typology based on a review of the literature which was then supported through factor analysis. The categories that emerged included directive guidance, nondirective support, positive social interaction, and tangible assistance. Directive guidance consists of another person providing advice, information or feedback about the individual's behavior. Nondirective support consists of actions which express intimacy, trust, caring, and understanding. Positive social interaction refers to social interactions that provide fun and enjoyment for an individual. Tangible assistance referred to the provision of money, providing shelter, or sharing in some task. The empirical distinctions provided can form a basis for developing a theoretical framework.

Cohen and Wills (1985) suggest that in order for a buffering effect to occur the function of the support must closely

correspond to the needs elicited by the stressor. If the stressor provides a threat to self-esteem the most effective type of support would be emotional. This provides support for the increasing recognition that researchers need to be more specific in what they wish to investigate. Unless there is a match between type of support and type of stressor the buffering model will not be supported.

Schaefer et al. (1981) investigated the role of tangible, informational, and emotional support in a community sample of middle-aged individuals. The results indicated that support was stable over a nine month period. Tangible and emotional support were significant predictors of depression and positive morale. None of the support measures were significantly associated with physical health status.

Cohen and Hoberman (1983) investigated the role of perceived support and actual support received by college students. Results indicated that the perception of self-esteem support and appraisal support exhibited a buffering effect. However measures assessing past support during the past month did not exhibit a buffering effect. Self-esteem and appraisal support may be the most effective buffers because most stressors elicit coping requirements that are best met with these social resources.

Sarason et al. (1987) compared various measures of social support that reflect different conceptions of support; the Inventory of Socially Supportive Behaviors (ISSB), the Social Support Questionnaire (SSQ), and the Interpersonal Support Evaluation List (ISEL) were used in the series of studies. The

ISSB was designed to assess types of help received by individuals (Barrera, Sandler, & Ramsay, 1981). Cohen, Mermelstein, Karack, and Hoberman (1985) constructed the ISEL to assess the perceived availability of several types of support: tangible, belonging, self-esteem, and appraisal. The SSQ was intended to reflect two components of social support: the perceived number of supportive others an individual could turn to in a number of situations (SSQN) and the degree of satisfaction with the perceived support (SSQS) (Sarason et al., 1983).

The results of the above study indicated that the core dimension of social support assessed by these instruments was the extent to which individuals perceive that there are others on whom they can rely on to provide support. The amount of actual support received, and who provides it, were not found to be important. The investigators suggested that delineating the functions of social support may prove to be too narrow for the concept to be useful, and that a more useful conception may be to view an individual as being involved in a number of relationships each characterized by different amounts of satisfaction.

Thoits (1986) examined the functions of social support and coping behavior and concluded that both concepts have a number of common functions. The model of coping behavior developed by Lazarus and his colleagues was used to conceptualize the functions of support. Social support functions are thought to operate like coping by assisting the person to change the situation, change the meaning of the situations, or change emotional reactions to the situation. Incorporating the concept of social support into a

general model of coping allows research findings to be more easily integrated.

D. Proposal for a study

In 1985, Lazarus et al. proposed a model which provided a framework to causally order the variables involved in the stress process. Person and environmental variables, including beliefs and values, stress and social support, respectively, are hypothesized to determine cognitive appraisals of the event and coping behaviors which in turn are assumed to influence psychological and physical well-being. No studies to date have simultaneously examined the variables involved in the stress process so the effects of each variable have previously been assessed in isolation of each other.

The present cross-sectional study, through the use of multivariate analyses, will determine the influence of hassles, social support, optimism, cognitive appraisal, and coping behavior upon psychological health. The present study is not an attempt to validate the causal sequence of the variables but rather an attempt to identify the variables that should be included in future longitudinal studies.

Several prediction have been put forth. In general, it is expected that the addition of variables, beyond stress, will increase understanding of the stress-illness relationship. More specific hypotheses based on the review of the literature are as follows.

Hypotheses:

1. Individuals scoring higher on the stress scale will report more threatening appraisals, utilize fewer problem-focused modes of coping and report more health symptoms.

2. Persons who score higher on the optimism scale are expected to engage in fewer threatening appraisals, utilize more action-oriented coping skills, and exhibit fewer psychological symptoms.

3. It is predicted that level of satisfaction with social support will be more influential in predicting health status than the number of individuals a person can turn to. A higher degree of satisfaction with social support will predict a greater use of action-oriented coping and fewer symptoms than a low degree of satisfaction with available social support.

4. An inverse relationship is expected between problem-focused coping and psychological symptoms and a direct relationship between emotion-focused coping and reporting of symptoms.

II. Method

A. Sample and Procedures

A sample of 553 introductory psychology students consisting of 296 females and 200 males and 57 individuals who did not indicate their sex was used in this study. The students were tested in groups ranging in size from 20 to 120 students. Participants were asked to complete a set of questionnaires assessing stress, social support, cognitive appraisal, coping, and psychological health for class credit. The following instruments were included:

B. Measures

The Hassles Scale was used to assessed the level of stress experienced by an individual. Kanner et al. (1981; see Appendix A) developed this 117-item scale which reflects annoyances, pressures, and difficulties associated with everyday interaction with the environment. The items refelect hassles in the areas of work, interpersonal relations, finances, and health. Participants were asked to indicate the severity of each item on a 4-point rating scale: 0=not experienced, 1=not severe, 2=moderately severe, 3=extremely severe. Two scores were obtained: a frequency score which is the total number of hassles experienced by the individual during the past month; frequency scores could range from 0-117. The intensity score is the sum of the 4-point rating scale of severity for each of the items; intensity scores could range from 0-351.

The Life Orientation Test, (LOT) developed by Scheier and Carver (1985; see Appendix B), was used to assess the

personality dimension of optimism. Participants were asked to indicate the extent to which they agree with each of the items (eg. I'm a believer in the idea that "every cloud has a silver lining."; I always look on the bright side of things) using the following response format: 4=strongly agree, 3=agree, 2=neutral, 1=disagree, 0=strongly disagree. Only eight of the twelve items are scored resulting in a possible range of scores from 0 (pessimistic) to 32 (optimistic). The reported test-retest reliability coefficient over a four-week period was .79 and the alpha coefficient was .76 (Scheier & Carver, 1985).

The Social Support Questionnaire (SSQ), a 27-item test developed by Sarason, Levine, Basham, and Sarason (1983; see Appendix C), is designed to assess two components of social support. One, the number of others (SSQN) individuals feel they could turn to in a variety of situations, eg. Who accepts you totally, including your worst and your best points? Two, an individual's degree of satisfaction (SSQS) with the perceived available support on a 6-point likert scale ranging from 6=very satisfied to 1=very dissatisfied. Alpha coefficient of internal consistency were .97 (SSQN) and .94 (SSQS). Test-retest correlation coefficients over a four-week period were .90 (SSQN) and .83 (SSQS). The correlation between scales was .34 indicating that the two scales are measuring different components of support.

The Ways of Coping Checklist (WCC), a 66-item scale, was developed by Folkman and Lazarus (1980; see Appendix D) to assess

cognitive and behavioral coping strategies used by an individual. Participants are asked to indicate on a four-point scale the degree to which they utilized each method: 0=does not apply or not used, 1=used somewhat, 2= used quite a bit, and 3=used a great deal. Scores on each scale are obtained by summing the score obtained for each item on the scale and dividing by the number of items contained within that category. This method of scoring allows the scores obtained from each scale to be comparable.

Primary appraisal was assessed using a 13-item scale developed by Folkman et al. (1986; see Appendix E). Subjects were asked to indicate on a five-point scale, 1=does not apply to 5=applies a great deal, the extent to which the stressful situations were threatening to their self-esteem, to a loved one, or a general threat. Threat to self-esteem is the sum of the first six items. Threat to a loved one is the sum of the next three items, overall threat is the sum of the next four items. The coefficient alpha for the self-esteem appraisal stakes was .78 and for the loved one's appraisal stakes .76 (Folkman et al., 1986).

Secondary appraisal was assessed using four individual items developed by Folkman et al. (1986; see Appendix F). The four items rated on a five-point likert scale, 1=does not apply to 5=applies a great deal, reflected the extent to which the situations were ones: that you could change or do something about; that you had to accept; in which you needed to know more before you could act; and in which you had to hold yourself back

from doing what you wanted to do. The items are used separately in analysis and because the reliabilities of the items are not determined caution is advised in interpreting the results.

The Brief Symptom Inventory (BSI) consisting of 53 items and developed by Derogatis (1975; see Appendix G) was used to assess the psychological symptom status of individuals. Participants are asked to indicate how distressing they found each symptom during the past week on a five-point rating scale, 0=not at all distressing to 4=extremely distressing. Several scores are obtained. A distress score which is the sum of the rating scale for all the items. A symptom scores which is a frequency count of the number of symptoms experienced. A severity score which is the sum of the distress ratings divided by the number of items. A sample of the subscaled were used to obtain scores for depression, anxiety, and somatization were also obtained and these are the sum of the rating scale for the items contained within the subscale. obtained as well as three global scores. The subscales that were not used included: somatization, depression, anxiety. Derogatis and Melisaratos (1983) evaluated the psychometric properties of the BSI. Test-retest correlations for the subscales ranged from .68 to .90 over a two-week interval. Internal consistency estimates for the subscales ranged from .71 - .85.

III. Results

A. Factor analysis of coping scores

The first step was to conduct a factor analysis of the items on the WCC. The items on the WCC were developed in order to reflect problem-focused and emotion-focused coping strategies. Researchers using the WCC have typically developed categories through a factor analysis of the items. The items on the WCC were subjected to principal components analysis with varimax rotation (Vitaliano et al., 1985). This analysis resulted in eight factors which accounted for 40.2% of the total variance. Four scales accounted for less than 3.0% of the variance and were dropped from subsequent analysis. This deletion is consistent with Vitaliano et al. (1985). Only items having factor loadings of 0.35 or greater were included in the scale. The items comprising each scale are shown in Table 1.

Table 1. Factor Analysis of Ways of Coping Checklist.

	Factor loading
Emotion-focused	
Criticize or lecture myself.	.48
Hope a miracle will happen.	.43
Realize I brought the problem on myself.	.45
Try to make myself feel better by eating, drinking, smoking, using drugs or medication.	.36
Refuse to believe it would happen.	.52
Make a promise to myself that things will be different next time.	.62
Accept it since nothing can be done.	.40
Wish that I can change what is happening or how I feel.	.65
Change something about myself.	.52
I daydream or imagine a better time or place than the one I am in.	.70
Wish that the situation would go away or somehow be over with.	.70
Have fantasies or wishes about how things might turn out.	.65
I prepare myself for the worst.	.36
Problem-focused	
Just concentrate on what I have to do next - the next step.	.47
I try to analyze the problem in order to understand it better.	.56
Try not to burn my bridges but leave things open somewhat.	.40
I'm changing or growing as a person in a new way.	.50
I'm making a plan of action and following it.	.60
I'll come out of the experience better than when I went in.	.57
I try not to act too hastily or follow my first hunch.	.48
Change something so things will turn out all right.	.43
Draw on my past experiences; I was in a similar situation before.	.58
I know what has to be done so I'm doubling my efforts to make things work.	.61
Come up with a couple of different solutions to the problem.	.51
I try to see things from the other person's point-of-view.	.52

	Factor loading
Seeking social support	
Talk to someone to find out more about the situation.	.43
I try to keep my feelings to myself.	-.51
Accept sympathy and understanding from someone.	.48
I let my feelings out somehow.	.55
Talk to someone who can do something concrete about the problem.	.43
Ask a relative or friend I respect for advice.	.67
Keep others from knowing how bad things are.	-.38
Talk to someone about how I am feeling.	.76
Avoidance	
I feel that time will make a difference - the only thing to do is wait.	.54
Bargain or compromise to get something positive from the situation.	.36
Go along with fate; sometimes I just have bad luck.	.45
Go on as if nothing is happening.	.51
I'm waiting to see what will happen before doing anything.	.46

Factor 1 includes 13 items with loadings ranging from .36 to .70 and accounted for 15.6% of the variance. This factor consists of items that deal with blaming oneself, wishing things would be better, and denial. This factor has been labelled as emotion-focused coping.

Factor 2 accounts for 7.3% of the variance and includes 12 items with loadings ranging from .40 to .61. The items in this scale refer to action-oriented behaviors and positive thinking and has been labelled as problem-focused coping modes.

The third factor was labelled as seeking social support and explains 4.0% of the variance. Eight items are included on this scale with loadings ranging from .38 to .76. The items reflect a mixture of problem-focused and emotion-focused strategies.

Factor 4 explains 3.7% of the variance and contains 5 items primarily passive and avoidance behaviors and thoughts. This factors has been labelled as avoidance coping.

The means and standard deviations of each of the variables are presented in Table 2.

Table 2. Means and standard deviations of variables.

Variable	Mean	Standard deviation
Intensity of hassles	87.445	36.421
Frequency of hassles	56.407	18.687
Life Orientation Test	17.667	4.478
SSQN	4.239	1.813
SSQS	4.806	.889
Distress	48.290	31.279
Anxiety	5.981	4.256
Depression	5.462	4.009
Number of symptoms	26.903	11.749
Severity of symptoms	.436	.608
Emotion-focused	.241	.065
Problem-focused	.210	.060
Seeking social support	.235	.055
Avoidance	.139	.052

B. Correlations

The correlations between person variables and health variables are presented in Table 3; nearly all of the correlations were significant. Optimism was inversely correlated with all of the health measures. The correlations between social support indices and health were also negative.

Table 3. Correlations between stress, optimism, social support and health.

	HASSLES INTENSITY	HASSLES FREQ.	OPTIMISM	SSQS	SSQN
DISTRESS	.58*** (n=473)	.49*** (n=473)	-.35*** (n=467)	-.28*** (n=473)	-.23*** (n=473)
NUMBER OF SYMPTOMS	.60*** (n=473)	.60*** (n=473)	-.31*** (n=467)	-.24*** (n=473)	-.19*** (n=473)
SEVERITY OF SYMPTOMS	.47*** (n=473)	.38*** (n=473)	-.35*** (n=467)	-.26*** (n=473)	-.21*** (n=473)
ANXIETY	.48*** (n=470)	.42*** (n=470)	-.24*** (n=464)	-.19*** (n=470)	-.10** (n=470)
DEPRESSION	.41*** (n=494)	.33*** (n=494)	-.35*** (n=487)	-.24*** (n=494)	-.27*** (n=494)

*** $p < .001$
** $p < .01$

Table 4 contains the correlations between appraisal and health. An increase in threatening appraisals was correlated with an increase in health scores. Secondary appraisals of coping options were also positively correlated with health status.

Table 4. Correlations between appraisal and health variables.

	Threat to Self-esteem	Threat to Loved one	General Threat	Could Change	Had to Accept	Know More	Hold Back
DISTRESS	.44* (n=473)	.27 (n=473)	.35 (n=473)	.15 (n=473)	.19 (n=473)	.20 (n=472)	.34 (n=473)
NUMBER OF SYMPTOMS	.42 (n=473)	.24 (n=473)	.32 (n=473)	.13 (n=473)	.19 (n=473)	.25 (n=472)	.32 (n=473)
SEVERITY OF SYMPTOMS	.38 (n=473)	.24 (n=473)	.30 (n=473)	.13 (n=473)	.14 (n=473)	.16 (n=472)	.30 (n-473)
ANXIETY	.33 (n=470)	.27 (n=470)	.30 (n=470)	.11 (n=470)	.19 (n=470)	.22 (n=472)	.28 (n=470)
DEPRESSION	.37 (n=494)	.24 (n=494)	.30 (n=494)	.11 (n=494)	.23 (n=494)	.17 (n=472)	.30 (n=494)

* all correlations significant at $p < .001$

The correlations between coping and health scores are presented in Table 5. In general, emotion-focused strategies were directly related to higher health scores while an inverse relationship existed between problem-focused coping and health status.

Table 5. Correlations between coping and health variables.

	EMOTION-FOCUSED	PROBLEM-FOCUSED	SEEKING SUPPORT	AVOIDS
DISTRESS	.30* (n=473)	-.31 (n=473)	-.19 (n=473)	.27 (n=473)
NUMBER OF SYMPTOMS	.27 (n=473)	-.34 (n=473)	-.15 (n=473)	.29 (n=473)
SEVERITY OF SYMPTOMS	.28 (n=473)	-.28 (n=473)	-.19 (n=473)	.25 (n=473)
ANXIETY	.23 (n=470)	-.21 (n=470)	-.13 (n=470)	.17 (n=470)
DEPRESSION	.31 (n=494)	-.30 (n=494)	-.17 (n=494)	.25 (n=494)

* all correlations significant at the $p < .001$ level.

C. Regression analysis

In order to determine which variables exerted the strongest effect upon health a hierarchical regression strategy was used (Cohen & Cohen, 1975). Hierarchical regression analysis allows sets of variables to be entered into the regression equation in a number of different steps, through this type of analysis one is able to determine the amount of variance accounted for with each set of variables. This type of analysis was chosen because there were three sets of variables whose order into the equation had been decided a priori according to the theoretical rationale put forth by Lazarus et al. (1985). Three sets of variables: 1) person variables (stress, optimism, social support); 2) cognitive appraisal (primary and secondary) and; 3) coping behavior were entered into the regression equation predicting psychological symptomology (BSI). The results of the regression analysis are presented in Table 6. Only variables which significantly contributed to the regression equation were included in Table 6.

Table 6. Results of the Regression Analysis.

Person, appraisal, and coping variables as predictors of health status. Numbers within the body of the table are standardized regression coefficients and the amount of variance accounted for is shown on the bottom line.

	Distress	Number of Symptoms	Severity of Symptoms	Anxiety	Depression
HASSLES INTENSITY	.39***		.28***	.36***	.21***
HASSLES FREQUENCY		.45***			
OPTIMISM	-.16***	-.14***	-.21***	-.11**	-.15**
SSQS	-.15**	-.11**	-.15**	-.09*	-.10*
SSQN					-.12**
R^2	.41	.43	.31	.26	.28
THREAT TO SELF-ESTEEM	.16***	-.15**	.16***	.10*	.14**
HAD TO ACCEPT					.09*
HAD TO HOLD BACK	.11**	.12**	.10**	.10**	.09*
R^2	.45	.47	.34	.28	.32
EMOTION-FOCUSED	.08*				.11*
PROBLEM-FOCUSED		-.10*			
R^2	.46	.48	.34	.28	.33

***p < .001
** p < .01
* p < .05

Person variables accounted for substantial portions of the variance in health scores, ranging from 26% of the variance in anxiety scores to 43% of the variance in number of symptoms. The intensity of hassles, optimism, and satisfaction with social support were predictors of all the health scores while the frequency of hassles and number of social supports were predictive of number of symptoms and depression. Appraisal and coping variables contributed very little to the prediction of illness scores.

To further explain Table 6, examine the variables contributing to the prediction of distress scores. Person variables accounted for 41% of the variance in distress scores. The addition of appraisal variables into the equation increased the amount of variance accounted for in distress scores to 45%, an increase of .04%. When coping variables are added into the equation there is an insignificant increase in the amount of variance accounted for.

To determine which variables exert the strongest effect in the prediction of distress scoress the regression coefficients should be examined. The intensity of hassles score was the strongest predictor with a coefficient equal to 0.39. The variable exerting the least effect is emotion-focused coping with a coefficient equal to .08.

In order for the model proposed by Lazarus to be supported one would expect a large increase in the amount of

explained variance in health scores when appraisal and coping were entered into the equation. This was not found to be the case in the present study.

IV. Discussion

The main purpose of this study was to determine the relative effects of a number of variables upon health status. The main hypothesis suggesting that the addition of variables beyond that of stress will contribute to the understanding of the stress-illness relationship was supported. The findings of the present study are of theoretical interest to the transactional model proposed by Lazarus and his colleagues. The addition of optimism and social support contributed significantly to the prediction of illness scores. This finding supports the notion that these variables should be included for study in the stress process.

The specific hypotheses were supported only in part.

Hypothesis 1. Individuals who had higher intensity of hassles scores did report more health symptoms. The role of appraisal and coping is unclear.

Hypothesis 2. Level of optimism was inversely related to health status. The concepts of appraisal and coping can be used to explain the relationship.

Hypothesis 3. Satisfaction with social support showed an inverse association with health status, number of social supports was found to exert a lesser effect.

Hypothesis 4. The relationship between coping and health is supported in the correlational analysis but the predictive value of coping in explaining health status was not supported.

A. Hassles

The finding that an increase in the intensity of hassles

reported by an individual is associated with an increase in distress scores is consistent with the results of several other researchers (Kanner et al., 1981; Burks & Martin, 1985; and Weinberger et al., 1987). The relationship between hassles and health has been explained in various ways. Kanner et al. (1981) suggested that hassles exert their influence on health through the mediation of major life events. For example, an individual becomes divorced and a number of minor demands are likely to arise. The hassles may disrupt one's daily routine and social relationships and ultimately health-related behaviors.

Lazarus (1984) proposed several mechanisms explaining the relationship between hassles and health. The first explanation involves the notion of the "straw that breaks the camel's back". Inherent in this idea is the assumption that there is a threshold of stress that an individual can tolerate; once this threshold is exceeded, damage to an individual's physical and psychological well-being occurs. There are some problems with this idea in that thresholds probably vary for each individual and identifying the threshold would be diffficult. Also, there is usually some delay between the experience of stress and the occurrence of illness, so the exact point at which the threshold is exceeded may not be able to be identified.

The second explanation (Lazarus, 1984) is that hassles, depending on their meaning and importance to the individual, operate selectively on health. The greater the influence of a hassle beyond a brief encounter, the larger will be its influence on health. Kanner et al. (1981) suggested that individuals,

because of their lifestyles, may be vulnerable to certain types of hassles and unless circumstances are altered the hassles will remain. This explanation corresponds with the transactional model proposed by Lazarus and Launier (1978). The notion of appraisal is addressed in that the meaning of hassles and not simply the frequency of occurrence is important in influencing health. Coping behavior is also involved, for the idea implies that unless an individual utilizes effective coping behavior the hassles will continue to exist.

A third explanation was also proposed by Lazarus (1984) and, when linked with the second explanation, and the results of the present study, appears reasonable. It was suggested that the more hassles which occurred within a time frame, the greater will be body disequilibrium. Extending this idea further, an individual may begin to feel overwhelmed and threatened if hassles of sufficient intensity are experienced within a short period of time. This idea is supported by the finding that the number of hassles significantly predicts threatening appraisals. The relationship between hassles and appraisal is likely to be reciprocal (DeLongis et al., 1982) and once a cognitive set for appraising stressful events is established it may be resistant to change. Over time, these continued demands and perceived threats may deplete one's resources resulting in a deterioration of well-being.

B. Optimism

Individuals who scored higher on the life orientation test were found to have lower distress scores compared to individuals

who scored lower on the life orientation test. This finding is consistent with the results of Scheier and Carver (1985). Also consistent with Scheier et al. (1986), the results of the present study indicate that optimism is directly related to the use of problem-focused coping behaviors and inversely related to emotion-focused coping.

The relationship between optimism and coping is consistent with the theory of self-regulation proposed by Scheier and Carver (1985) and helps to explain the link between optimism and health. The theory has proposed that an individual assesses the outcome expectancy of a situation. If the expectancy is favorable (optimism), the theory assumes an expenditure of energy to achieve the goal. When an individual makes an effort to attain something he/she is increasing the chances of obtaining the goal than if passive behaviors are undertaken. From this perspective, optimistic individuals would report fewer symptoms because their goals are achieved. The theory also proposes that if expectations are perceived as unfavorable, the results will be a reduction in effort and possibly disengagement from the situation, equivalent to the use of emotion-focused coping.

The relationship between optimism and coping is likely to be reciprocal. Goodhart (1985) suggested that, although the effects of positive thinking are transitory, future events may stimulate recall of successfully resolved situations and the means used to resolve the situation. If certain coping modes reduce stress, this favorable outcome should cause an individual to return to these behaviors when faced with subsequent problems.

Over time, positive thinking may generalize into several role areas and an optimistic tendency results. A similar chain of events may occur for a pessimist except that the coping efforts engaged in do not reduce the stress and thus reinforce the expectation of unfavorable outcomes.

C. Social support

Consistent with the result of several researchers (Schaefer et al., 1981; Cohen & Hoberman, 1983), satisfaction with social support was found to be inversely related to health problems; people who are satisfied with friends and family report lower distress scores. Overall, satisfaction with support exerted stronger effects than size of social network in predicting health status. This pattern of results suggests that quality of social relationships is more important than quantity in determining the effects of social support.

Cohen and Wills (1985) suggested that there are two points in the stress process at which social support may exert its beneficial effects. The first point is during the appraisal of stress; it is believed that having the support of another individual may prevent the stressful appraisal. These researchers (Heller et al., 1986; Wethington & Kessler, 1986) also suggest that social support can affect the appraisal process by influencing assessment of potential threat of mastery of the situation. For example, if an individual is satisfied with his/her friends, some events may be perceived as less threatening if he believes that friends will not judge him harshly. The presence of others may allow an individual to evaluate situations

favorably because others may be there to assist if he fails. The availability of social support is believed to provide self-confidence and a sense of self-worth which may result in a general sense of mastery when confronted with stress.

The results of the present study suggest this is not the case. Satisfaction with social suppport did not predict threat to self-esteem or threat to a loved one. Satisfaction with support did however exert a moderate effect upon secondary appraisal; the evaluation of coping options. The presence of someone to talk to may result in an individual taking time to evaluate the alternatives that are open to them and thus result in coping behaviors which may reduce the stress experienced.

The second point at which social support may exert an effect is in inhibiting maladaptive behavior and/or facilitation of adaptive behavior. Thoits (1986) argued that social support influences health outcomes through its influence on coping behavior. This appears to be a reasonable explanation based on the present results. Satisfaction with social support directly predicted the use of seeking social support as a coping mode; if a person is happy with those around him/her it should not be difficult to ask for help. If a person is dissatisfied with their social network then it is probable that he/she will try to avoid the people involved and possibly the situation itself. Size of social network predicted problem-focused coping directly and emotion-focused coping indirectly. It may be that in order to engage in action-oriented behaviors an individual may need to have a large number of people around in order to obtain

assistance. Also, a greater number of social supports may increase the number of available options. Perceiving few social supports may increase the probability that an individual will withdraw from action-oriented behavior to emotion-focused coping.

D. Cognitive appraisal

Cognitive appraisal of the situation, specifically threat to self-esteem, threat to a loved one, and situations in which action had to be withheld, were significant predictors of illness. Lazarus and Folkman (1984) discuss the importance of appraisal in mediating adaptational outcomes. They argue that cognitive appraisal is central in mediating individual reactions to stressful events and this is empirically consistent with the observations of individuals in adapting to stressful events.

A person who is consistently threatened is more likely to have difficulties with adaptation to stress. Threat is believed to encourage withdrawal or defensive action that turns a person inward (McCrae, 1984). Thus, action is not undertaken to reduce the stress. Over time the stress may exert a cumulative effect upon health. A challenge on the other hand is believed to encourage venture and openness and increases the probability of problem-solving. A challenged individual is likely to feel more confident, less overwhelmed, and more capable of drawing on available resources.

E. Limitations of the present study

The results of this study should be interpreted with some caution because there are theoretical issues and methodological difficulties which require further consideration.

Similar to other studies in this area of research, the present study used a university sample, was cross-sectional and utilized paper-and-pencil questionnaires. The results of the study are therefore not generalizable beyond university students. It would be interesting to examine the same variables in different populations such as the elderly, individuals experiencing prolonged illnesses, business people in order to determine whether the relationships between the variables remain the same. If so, then the model would reflect the underlying general processes of the stress-illness relationship.

Since the study was cross-sectional and not longitudinal, causal statements about the direction of the relationships can not be made. The order in which the sets of variables were entered into the regression equation was determined by the model proposed by Lazarus et al. (1985) that was assumed to reflect the causal sequence. Longitudinal studies have been conducted (eg. Pearlin et al., 1981) and the results indicate that appraisal and coping variables do mediate the relationship between stress and illness. The relationship between stress and health appears to be reciprocal but prospective studies have shown that stress is a better predictor of illness than vice versa. The present study did not contribute to the resolution of the causal ordering of the variables but instead contributed to the understanding of which variables should be studied further in trying to predict health status.

There are problem inherent with the use of paper-and-pencil instruments: subjects can distort their response to appear

socially desirable, questions may be omitted or interpreted incorrectly, only brief desciptions are available limiting the amount of detail which can be included. In order to check the accuracy of these results verification should be made. Illness measures could be verified through a doctor's report or days absent from work or school. The use of coping behaviors could be obtained from family or friends. Individuals within a person's social network could be contacted to obtain subjective information about frequency of contact and type of assistance required. These methods would provide objective information in addition to the subjective experience of the individual.

The theoretical explanations regarding the effects of hassles, optimism, and social support upon health, invoked the notion of coping behavior. Unfortunately, the results of the present study do not support the idea that coping exerts a strong effect on health status. The discrepancy between the theoretical predictions and empirical findings may be accounted for with the following explanation. Coping behavior may not have significantly predicted distress because of the manner in which coping was assessed.

The methodology advocated by Lazarus and his colleagues is a longitudinal design with intraindividual analysis of coping behavior. This method requires repeated assessments of an individual's coping behaviors in response to a number of different stressors. Coping behavior in the present study was measured in response to situations in general; the specific nature of the stressful situations were not determined. Pearlin

& Schooler (1978) have found that coping behavior is differentially effective depending on the nature of the situation. What may have happened in the present study is that individuals experienced stress in a large number of different role areas and the effectiveness of coping behavior in one area was averaged out because the same coping behavior was ineffective in another role area. Maybe, in order to gauge the influence of coping on health, coping needs to be assessed using the methods adopted by Lazarus and his colleagues.

The present study, with its noted limitations, has demonstrated the importance of hassles, optimism, and social support in the stress-illness relationship. Based on the results of this study it is suggested that these variables should be assessed in future studies to fully determine the explanatory power of the model proposed by Lazarus et al. (1985). To date, the Lazarus group have not examined all the variables simultaneously and subsequently the results reflect components of the model. It is only through the systematic study of many variables can the relationships between variables and their effects upon distress be fully understood.

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Appendix A

The Daily Hassles Scale

The material in this scale has been removed because of the unavailability of copyright permission. The original source of the material can be found in Kanner, A., Coyne, J.C., Schaefer, C., & Lazarus, R.S. (1981). Comparison of two modes of stress measurement: daily hassles and uplifts versus major life events. Journal of Behavioral Medicine, 4, 1-39.

Appendix B

Life Orientation Test

The material in this scale has been removed because of the unavailability of copyright permission. The original source of the material can be found in Scheier, M.F. & Carver, C.S. (1985). Optimism, coping, and health: assessment and implications of generalized outcome expectancies. Health Psychology, 4, 3, 219-247.

Appendix C

Social Support Questionnaire

The material in this scale has been removed because of the unavailability of copyright permission. The original source of the material can be found in Sarason, B.R., Shearin, E.N., Pierce, G.R., & Sarason, I.G. (1987). Interrelations of social support measures: theoretical and practical implications. Journal of Personality and Social Psychology, 52, 4, 813-832.

Appendix D

The Ways of Coping Checklist

The material in this scale has been removed because of the unavailability of copyright permission. The original source of the material can be found in Folkman, S. & Lazarus, R.S. (1980). An analysis of coping in a middle-aged community sample. Journal of Health and Social Behavior, 21, 219-239.

Appendix E

Primary Appraisal

The material in this scale has been removed because of the unavailability of copyright permission. The original source of the material can be found in Folkman, S., Lazarus, R.S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R.J. (1986). Dynamics of stressful encounter: cognitive appraisal, coping, and encounter outcomes. Journal of Personality and Social Psychology, 50, 5, 992-1003.

Appendix F

Secondary Appraisal

The material in this scale has been removed because of the unavailability of copyright permission. The original source of the material can be found in Folkman, S., Lazarus, R.S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R.J. (1986). Dynamics of stressful encounter: cognitive appraisal, coping, and encounter outcomes. Journal of Personality and Social Psychology, 50, 5, 992-1003.

Appendix G

Brief Symptom Inventory

The material in this scale has been removed because of the unavailability of copyright permission. The original source of the material can be found in Derogatis, L.R. (1975). Brief Symptom Inventory. Baltimore: Clinical Psychometric Research.